ІНІЦІАТИВА З ПИТАНЬ ЗМІНИ КЛІМАТУ
CLIMATE CHANGE INITIATIVE

DELIVERABLE № 6, 2000

Training Program

Module I: Basics of Climate Change

Prepared for:
The United States Agency for International Development
under Contract LAG-I-00-98-00005-00, Task Order 16

Prepared by:
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USA
(202) 442-2000

September 2000
Updated September, 2002

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Module Contents

Overview

Background

This module is the first in a series of nine, which comprise the Climate Change Initiative's (CCI) near-term training program in Ukraine. As a complete package, these nine are intended to build awareness among a wide group of stakeholders, on climate change issues.

Module One, *The Basics of Climate Change*, is designed to provide the foundation for this process, by focusing on: the physical processes involved, the potential impacts, the international policy arena, the methodologies and financial mechanisms available to help countries respond to the problem, and the ways in which countries can translate concern about climate change into national action.

Material for the module was adapted for Ukraine from existing packages and reports; namely the CC:TRAIN materials developed by the United National Institute for Training and Research (UNITAR), slide presentation materials developed by the Tellus Institute/Stockholm Environment Institute's Boston Center (Tellus/SEI-B), on behalf of the International Institute for Education (IIE), and materials prepared by the United States Country Studies Program (USCSP).

Participation

The ideal audience for this module includes senior level ministry officials and representatives of industry groups and non-governmental organizations. Participants with a technical background in science, engineering, or economics will also benefit.

Objectives

This module aims to impart an enhanced understanding of the basics of climate change – including the UNFCCC, the Kyoto Protocol, economic instruments, and potential impacts – and through this process, to familiarize Ukrainian decision-makers and stakeholders with the core climate change issues and challenges confronting the nation.

The long-term goal is an enhanced and lasting awareness of climate change issues, and the beginning of a functional consensus among key stakeholders on how to approach and manage climate change activities in Ukraine.

Module Basics

- ***Duration***: 1 day
- ***Participants:*** 20-25
- ***Venue:*** cities in Ukraine
- ***Facilities (recommended):*** The module can be presented in any comfortable training facility. Adequate space for plenary presentations should be made available.
- ***Format:*** Workshop; six sessions; each consisting of a (typically) 30-minute long presentation, including a question and answer period.
- ***Instructor:*** Between 1 and 2 Ukrainian experts
- ***Audio/Visual Needs:*** Overhead projector, overhead monitor, videocassette setup
- ***Contacts:*** Natalya Parasyuk of CCI, Dan Thompson (USAID), Bill Dougherty and Michael Lazarus of Tellus Institute

Materials

The module provides several types of material for use during both the preparation of the workshop, and the workshop itself. This material is outlined below.

Video Presentation. "Our Changing Climate" is an informative film on the science and impacts of global climate change. The video will give everyone a better understanding of the points that will be discussed In Module One. The CC:TRAIN Video was developed by Dr. Irving Mintzer, UNITAR Special Fellow and the Centre for Global Change. The contents of the video are based on the findings of he Intergovernmental Panel on Climate Change (IPCC).

Session Overview: The session overviews are "blueprints" for each of the six sessions. The overview of each session provides a summary of the session, listing basic information, such as the general objective, total time, and type of activities involved.

Overhead transparencies: OHTs are divided into sets according to sessions. Each set of OHTs is numbered consecutively and has titles based on their content. The precise order in which slides should be shown is presented in the corresponding session plan. Presenters are encouraged to give participants sufficient time to read and understand each OHT.

Reading and Resources: Citations for a number of key reports are included for further reference on the subject of the basics of climate change.

Participant Materials: This material consists of a series of handouts. Only one copy of each of the handouts (such as the UN Framework Convention on Climate Change), is included in the workshop package. Copies of the handouts should be made prior to the workshop. The session plans tell the presenter when to distribute the handouts and how to guide the speaker in using them properly. The presenter may wish to ask someone to help distribute handouts to save time. Presenters are encouraged to make certain that enough copies of the handouts have been prepared, and to arrange the handouts so that they can be distributed with ease during the workshop.

Evaluation Process

Module One will need be evaluated in order to improve the workshop package for more effective subsequent use. The evaluation can be conducted using a simple questionnaire, developed by the UNITAR CC: Train Program, which can be found in section 3 of the package. At the close of the day, the organizer should ask the participants to take five to ten minutes to complete the evaluation form. Participants need to be asked to put down their names on the forms.

Agenda

The agenda for Module One appears on the following page.

Proposed Agenda for Module 1: Basics of Climate Change in Ukraine

Session	Topics to be covered	• Time
Opening Remarks	Welcome to participants, introduction of meeting structure, overall objectives and presenters	9:00 – 9:15
Video Presentation	Introductory video on the science and impacts of climate change	9:15 – 9:45
1. Introduction to climate change	The process of climate change including greenhouse effect, greenhouse gas sources and sinks, historical records	9:45 – 10: 15
Discussion Session		10: 15 – 10:30
Break		10:30 – 10:45
2. Impacts of climate change	Physical changes due to climate change and forecasts of their specific ecological and sectoral impacts	10:45 – 11:15
Discussion Session		11:15 – 11:30
3. International agreements on climate change	The international response to the threat of climate change, and the structure, functionality and challenges of international agreements	11:30 – 12:00
Discussion Session		12:00 – 12:15
Lunch		12:15 – 1:00
4. Methods of climate change assessment	The series of methodological tools developed for use by nations in assessing a) the significance of climate change to their unique circumstances, b) how they contribute to the problem, and c) what they might do to respond at the national level	1:00 – 1:30
Discussion Session		1:30 – 1:45
5. Financing and flexibility mechanisms	Opportunities and parameters presented by the international agreements for financing national responses to climate change	1:45 – 2:15
Discussion Session		2:15 – 2: 30
6. National, regional and local action plans	The process of preparing an inclusive, cross-sectoral plan of response to the threat of climate change	2:30 – 3:00
Evaluation Session		3:00 – 3: 15
Discussion Session and Closing Remarks		3:15 – 4:00

MODULE I: BASICS OF CLIMATE CHANGE

Session 1: Introduction to Climate Change

Overview

General Objectives: By the end of the session, participants should have a basic understanding of the following:

- Changes and trends in the historical temperature records
- How changes in the atmosphere affect its behavior
- The causes of these changes
- The physical effects of these changes on the Earth

Activities: An overhead slide presentation, followed by period of questions and answers

Total Time: 45 minutes

Materials: Set of 23 OHTs; One hand-out (Sources of additional information)

Reading and Resources

Where to Find More Information:

- Houghton et al.,1990. *IPCC Scientific Assessment Report,* Cambridge University Press, Cambridge, UK.
- Information Unit on Conventions (IUC), United Nations Environment Programme, Geneva, Switzerland
- Climate Change Secretariat, 1995. Annotated Compilation of Reports by International Agencies on the Risks of Rapid Climate Change, UNFCCC Secretariat, Geneva, INC Doc A/AC.237/83
- Houghton et al., 1996*: Climate Change 1995: The Science of Climate Change*, Cambridge University Press, Cambridge, UK
- Watson, et al., 1996. Climate *Change 1995: Impacts, Adaptations, and Mitigation of Climate Change*, Cambridge University Press, Cambridge, UK.

Introduction to Climate Change

Session 1

CCI - Ukraine Workshop Package

Slide 1

The Science of Global Climate Change

Impacts are closely related to science

Session 1 - Intro to climate change
(focus on science)

Session 2 - Impacts of climate change

Session 2 builds on Session 1

Slide 2

Acronyms used in this session

IPCC	- Intergovernmental Panel on Climate Change
GHG	- Greenhouse Gas
CO_2	- Carbon Dioxide
CH_4	- Methane

Slide 3

Session I: Overview

This session will :

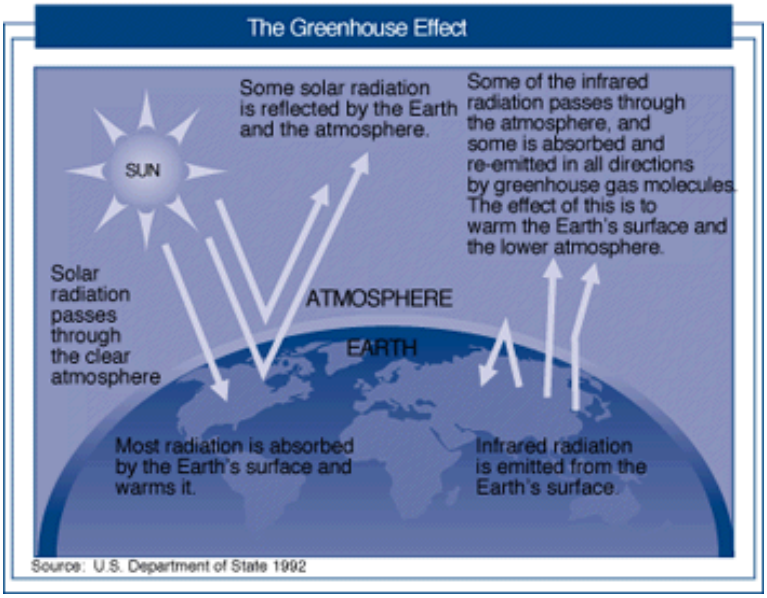
- Review the natural greenhouse effect and how humans are increasing GHG levels
- Examine trends in the historical temperature records
- Summarize the latest IPCC conclusions
- Review major GHG sources and sinks

Slide 4

Key Topics

- The physics of the greenhouse effect
- The observed record of atmospheric temperature and GHG concentration
- Feedbacks and uncertainties in the climate system
- Multiple causes of increased GHG concentrations

Slide 5



Slide 6

Life is possible because of the natural Greenhouse Effect

- The Earth's surface temperature would be only -18?C without the Greenhouse Effect
- The natural greenhouse effect warms the atmospheric temperature to 15?C at the Earth's surface
- This natural warming allows water to exist on the Earth's surface. Water is the basis of life support and biological evolution

Slide 7

Feedback Mechanisms

- Water vapour feedback
- Cloud feedback
- Surface albedo feedback
- Feedback involving oceans
- Feedback effects could bring rapid change

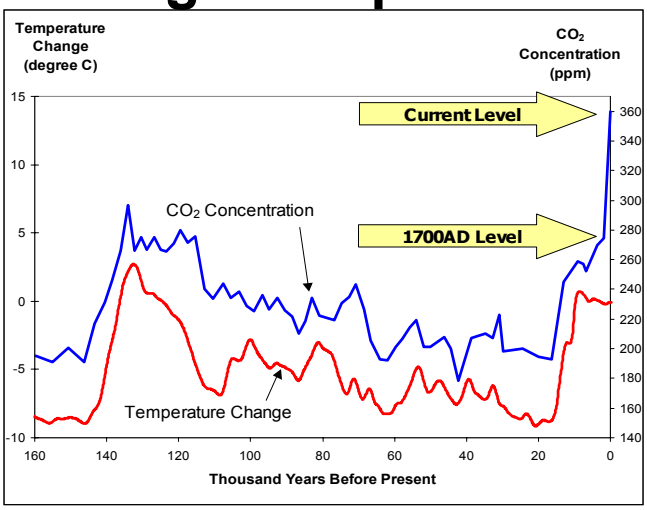
Slide 8

Long-Term Temperature Record

- Change is not unusual. The atmosphere's temperature has always fluctuated in the past over large time-scales (thousands of years).
- Ice core data indicate large temperature swings that are correlated with $C0_2$ and methane concentrations.
- Change is not steady (monotonic) due to the underlying variability of the climate system and positive feedback mechanisms.

Slide 9

Correlation of CO_2 and Average Temperature



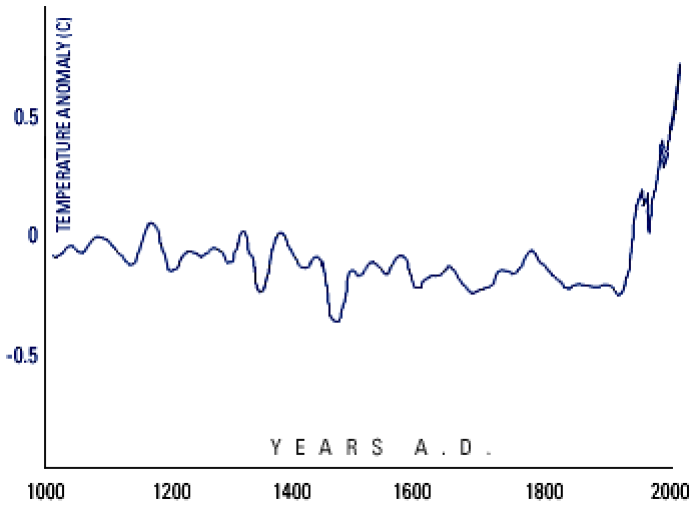
Slide 10

Latest IPCC Conclusions

- Third Assessment Report released in 2001.
- Global average surface temperature has been relatively stable for the past 1000 years
- Temperature has increased about 0.6?C over the last 100 years but with significant year-to-year variation.
- 1990s were warmest decade on record
- 1998 was warmest year on record
- Warming over last 50 years is likely due to increased GHG concentrations.

Slide 11

Average Temperature 1000-2000



Slide 12

Latest IPCC Projections

– By 2100, under a "business as usual" scenario:
  - CO_2 concentrations are expected to increase by 90 - 250% over pre-industrial levels.
  - Large increases in methane and N_2O concentrations are also expected.
  - Global average surface temperatures will increase by 1.4 - 5.8?C.

Slide 13

Latest IPCC Projections [cont.]

– Warming will not be evenly distributed worldwide

– Warming will be greatest at the poles (up to 2-3 times global average) and least in the tropics (50-75% of global average).

– Projections of temperature changes at the regional level are highly uncertain.

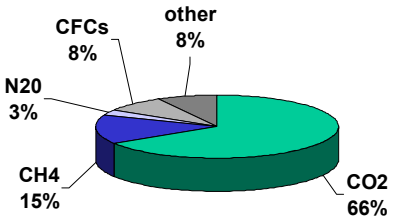
Slide 14

Sources and Sinks of Greenhouse Gases

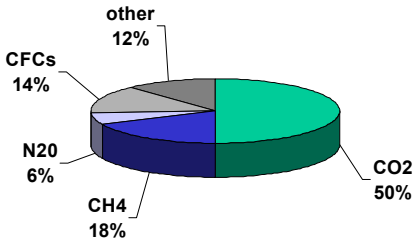
- **Source:** A natural or human activity that emits GHGs into the atmosphere. The most important anthropogenic (human) source of carbon dioxide is fossil-fuel combustion.
- **Sink:** A part of the biosphere that acts as a stable reservoir for GHGs. The most important sinks of carbon dioxide are the oceans and the terrestrial biomass (e.g., trees).
- **Net Emissions = Sources - Sinks**

Slide 15

Many Gases Contribute to Global Warming



1880 - 1980



1980 - 2000

Estimated value based on concentration changes.
Source: 1880 – 1980: Ramanathan et.al., 1985
1980s: Hansen et.al., 1988

Slide 16

Sources of Carbon Dioxide Emissions

- Anthropogenic emissions of CO_2 were roughly equivalent to 6 - 8 billion tonnes of carbon in 1990
- This represents a global average emission rate of slightly more than 1 tonne of carbon per person per year
- The principle source of CO_2 emissions each year include:
  - Emissions from fossil fuel combustion and cement manufacturing: *5.6 billion tonnes of Carbon / yr*
  - Emissions from deforestation and other forms of land-use change: *0.5- 2.5 billion tonnes of Carbon / yr*

Slide 17

Natural Sinks of CO_2

The principal sinks for CO_2 are :

- storage by forests
- absorption in the ocean
- uptake by soils

Slide 18

Sources and Sinks of CH_4

Major Natural Sources

- Wetlands, termites

Major Human Sources

- Rice paddies, livestock,
- Natural gas production and transmission
- Landfills, coal mining

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Sources of Other GHGs

- Methane (CH_4)
- Nitrous oxide is produced by bacteria in soils
- CFCs are produced only by industrial processes
- Tropospheric ozone is produced by the interaction of sunlight with other industrial pollutants *(e.g., nitrogen oxides (NOx) and volatile organic compounds (VOCs).*

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Reduction in GHG Emissions Needed to Stabilise Atmospheric Concentrations at Present Levels

Greenhouse Gas:	Reduction Required:
– Carbon Dioxide	>60%
– Methane	15 - 20%
– Nitrous Oxide	70 - 80%
– CFC-11	70 - 75%
– CFC-12	75 - 85%
– HCFC-22	40 - 50%

Slide 21

Summary

- The greenhouse effect is a natural process, necessary to maintain life on this planet.
- Climate change has become a threat because of excess anthropogenic emissions of GHGs.
- If current emissions trends continue, atmospheric build-up of greenhouse gases could cause average temperatures to increase significantly over the next century.
- Although CO2 is the most important GHG, several other gases make significant contributions
- Very large decreases in GHG emissions are needed in the long run to stabilize GHG concentrations.

Slide 22

Where To Get More Information

- Intergovernmental Panel on Climate Change. Third Assessment Report (2001) and earlier publications. <www.ipcc.ch>
- World Meteorological Organization. <www.wmo.ch>
- U.S. Environmental Protection Agency. Climate change website. <www.epa.gov/globalwarming>
- U.S. Global Change Research Program. <www.usgcrp.gov>

Slide 23

MODULE I: BASICS OF CLIMATE CHANGE

Session 2: The Impacts of Climate Change

Overview

- **General Objectives:**

  By the end of this session, the participants should be able to appreciate the following key issues:

  a) What changes will affect the planet as a whole?
  b) Which changes will affect only certain regions?
  c) How will the regional impacts be distributed?
  d) Will the changes occur gradually or in a step-wise, discontinuous pattern?

  The purpose of this session is to help participants identify and appreciate the potential regional and global impacts of climate change.

- **Activities:** Presentation, followed by period of question and answer

- **Total Time:** 45 minutes

- **Materials:** Set of 23 OHTs

The Impacts of Climate Change

Session 2

CCI - Ukraine Workshop Package

Slide 1

Objectives

- Highlight the likely impacts of climate change on physical, human, and ecological systems
- Review possible scenarios of severe impacts
- Explore some potential adaptation strategies

Slide 2

Key Questions

- What are the likely impacts on physical systems (e.g., weather, sea level, glaciers, etc.)?
- What are the likely changes on humans and human systems?
- What are the likely changes on ecosystems?
- How will changes vary by region?
- What will be the impact on Ukraine?

Slide 3

Impacts - Physical Systems - Weather

- The increase an average surface global temperature will have a complex set of impacts on weather patterns.
- Predictions of weather impacts are less certain than the average temperature increase
- Likely impacts include: more droughts in mid-latitude continental interiors, more intense precipitation events, and increased tropical cyclone intensities

Slide 4

Impacts - Physical Systems - Sea Level, Glaciers, Etc.

- Sea level likely to increase 9 to 88 cm. by 2100, and will continue to increase thereafter
- Shrinkage of glaciers
- Thawing of permafrost
- Water bodies: later Winter freeze / earlier Spring thaw

Slide 5

Impacts - Human Systems

- Human health
- Human settlements
- Water Supplies
- Energy & industry
- Agriculture
- Forestry
- Fisheries

Slide 6

Impacts on Human Health

- Warmer weather may alter the habitat and lifecycle of pests and other vectors of disease
- Preliminary data suggests that warmer ocean waters may promote wider exposure to typhoid in coastal areas
- Warm, wet weather may expand the range of malaria-carrying mosquitoes
- Warm weather may increase the spread of dengue fever and river blindness

Slide 7

Impacts on Human Settlements

- The areas most vulnerable to sea level rise are low-lying islands and flat delta regions at the mouths of the great rivers
- Increased landslides are also likely
- Coastal storm surges could threaten 200 million people by 2080
- Estimates of damage to coastal infrastructure are tens of billions of dollars per country (e.g., Egypt, Poland, Vietnam)

Slide 8

Impacts on Water Supplies

- Impacts will depend on changes in regional precipitation patterns
- Currently 1.7 billion people live in “water stressed” regions, and this will grow to 5 billion in 2025
- Climate change is likely to decrease water supplies in many of these areas (e.g., Central Asia, Southern Africa) while increasing supplies elsewhere

Slide 9

Impacts on Energy and Industry

- Warming weather and extended hot spells may decrease water availability for hydropower
- During the California drought of the 1970s, for example, electricity production from hydroelectric dams declined by 30%
- Other industry faces similar risks as human settlements

Slide 10

Impacts on Agriculture

- Impacts are complex and can vary by region and by degree of climate change
- Key factors include regional changes in temperature and precipitation, and adaptation by farmers are all important
- In general, a small warming may improve agricultural yields in mid-latitude regions
- A warming of more than a few degress C. is likely to decrease these yields
- Yields in tropics will generally fall

Slide 11

Impacts on Agriculture [cont.]

- Farmers in regions of traditionally rainfed agriculture may have to alter their cropping patterns or abandon their lands if regional precipitation and runoff increase or decrease dramatically
- In some regions, warmer temperatures may allow lands at higher elevations to be colonized for agriculture
- Some "CO2 fertilization" may occur, but its impact will be small relative to other impacts

Slide 12

Impacts on Forestry

- Like agriculture, impacts on forestry are complex and can vary by region and by degree of climate change
- Impacts are likely to be similar to that of agricultural sector

Slide 13

Impacts on Fisheries

- The impacts of climate change will interact with the effects of overfishing, shrinking nursery areas, and extensive inshore and coastal pollution to threaten many traditional fisheries
- Changes in water temperature may cause some commercially important species to die off or migrate away from traditional fishing grounds
- Warmer water can alter predator-prey relations
- Changes in ocean currents may bring fish populations into contact with new predators or competitors
- The principal impacts will be felt at the national and local level as species mix and habitats shift

Slide 14

Impacts - Ecosystems

– Shifts and declines in various plant & animal species
– Exinction of vulnerable species and decline of biodiversity

Slide 15

Regional Impacts of Climate Change

– Different climate models predict similar global impacts, but can vary in predictions of regional impacts
– Some models may predict that a region may benefit (e.g., slight warming and increased precipitation may help agriculture)

Slide 16

Regional Impacts [cont.]

- An increasingly interconnected and globalized economy make it unlikely that there will be "winners" due to climate change
- Scenarios of severe climate change should also make one cautious of predicting "winners"

Slide 17

Scenarios of Severe Climate Change

- Scientists cannot rule out some scenarios of rapid and severe climate change if:
  - "Ocean conveyor belt" is disrupted
  - Antarctic and Greenland icesheets melt
  - Large GHG releases from melting permafrost or methane in coastal sediments

Slide 18

Impacts - Ukraine

– *[insert any available material specific to Ukraine here. Give range of impacts if possible]*

Slide 19

Summary

– The impacts of rapid climate change will affect many sectors of society and natural ecosystems

– The ability of society and natural ecosystems to adapt to impacts will be strongly affected by the rate at which the change occurs

Slide 20

Summary [cont.]

- Agriculture, forests, and fisheries may experience significant changes in their annual yields
- The fertility, robustness, and species composition of various ecosystems may change dramatically
- Human health may be adversely affected by changes in the range and strength of disease vectors and pests

Slide 21

Summary (cont.)

- The extent of the damage to ecosystems and the dislocation of human economies will be greater if the rate of change is rapid.
- Climate change is likely to occur at the same time as other types of environmental stress. As a result, rapid climate change may magnify these impacts.

Slide 22

Where To Get More Information

- Intergovernmental Panel on Climate Change. Third Assessment Report (2001) and earlier publications. <www.ipcc.ch>
- World Meteorological Organization. <www.wmo.ch>
- U.S. Environmental Protection Agency. Climate change website. <www.epa.gov/globalwarming>
- U.S. Global Change Research Program. <www.usgcrp.gov>

Slide 23

MODULE I: BASICS OF CLIMATE CHANGE

Session 3: International Climate Change Agreements

Overview

General Objectives:

Session 3 is an introduction to the United Nations Framework Convention on Climate Change and the Kyoto Protocol. It seeks to provide participants with a balanced understanding of the international response to the challenges of climate change, set out in the previous two sessions. Session 3 also seeks to provide a flavor of the national interest and international politics that have influenced the negotiation of the Convention, and will continue to shape it in the future.

By the end of the session, participants should have a basic understanding of the following:

- Historical perspective on the Convention
- Structure of the Convention, including commitments (differentiation), institutions and procedures
- Opportunities for finance and support
- Emergence, elements and commitments of the Kyoto Protocol
- Flexibility mechanisms
- Unresolved issues

Activities: Presentation, followed by period of question and answer

Total Time: 45 minutes

Materials: Set of 38 OHTs; 3 handouts

International Agreements:

Challenges and Opportunities of the U.N. Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol

Session 3

CCI - Ukraine Workshop Package

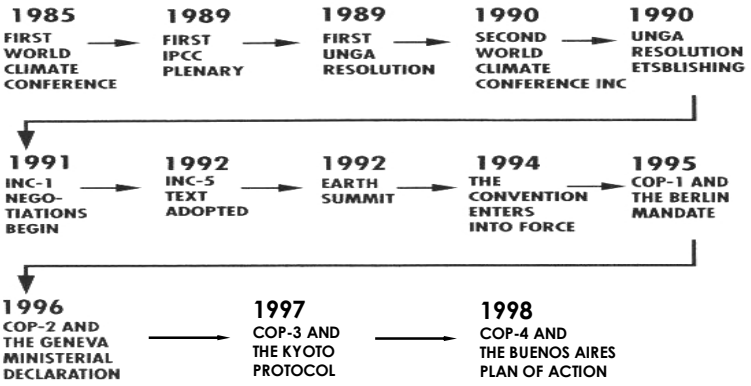
Slide 1

Session Overview

- Historical perspective on the Convention
- Structure of the Convention
  - **Commitments (differentiation)**
  - **Institutions**
  - **Procedures**
- Opportunities for finance and support
- Emergence of the Kyoto Protocol
- Elements and Commitments of the Kyoto Protocol
- Flexibility mechanisms
- Unresolved issues of the Kyoto Protocol

Slide 2

Historical Perspective 1985-98



Slide 3

Recent Developments 1999-2001

Nov. 2000: COP-6 – Parties fail to reach agreement on key Kyoto implementation issues

Jan. 2001: President Bush takes office. Withdraws U.S. support for Kyoto. Continues support of UNFCCC.

July 2001: COP-6 bis – Remaining parties reach agreement on major implementation issues.

Nov. 2001: COP-7 – Remaining parties finalize details on major implementation issues, and many state intent to ratify at Rio+10 Summit in 2002

Slide 4

Ratifications

As of December 2001

- The UNFCCC is in force with almost all of the 188 countries that participate or observe in UNFCCC negotiating sessions have ratified the underlying 1992 treaty.
- About 40 countries have ratified the Kyoto Protocol (primarily small island, Central and South American, and FSU states) and most of the major Annex I countries have stated their intent. However, Kyoto has not come into force yet.

Slide 5

Objective of the Convention

"Stabilisation of the greenhouse gas concentrations in the atmosphere at the level that would prevent dangerous anthropogenic interference with the climate system."

(Article 2 of the Convention)

Slide 6

Objective of the Convention (ctd.)

"… Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner"

(Article 2 of the Convention)

Slide 7

Structure of the Convention

- **Commitments**
- **Institutional Framework**
- **Procedures**

Slide 8

Structure of the Convention

1. Commitments

– National communications
– Mitigation targets
– Financial resources

Slide 9

Differentiation among nations

Article 4.2 (a)

"Developed country Parties and other Parties included in Annex I shall adopt national policies and... measures on the mitigation of climate change, by limiting... emissions ... and protecting and enhancing ... sinks and reservoirs. These policies and measures will **demonstrate that developed countries are taking the lead…"**

"... **taking into account the differences** in Parties' starting points and approaches, economic structures and resource bases, ..., available technologies and other individual circumstances, as well as the need for **equitable and appropriate contributions** …"

Slide 10

Differentiation among nations (ctd.)

Principles for differentiation of commitments

- Parties' historical emissions of greenhouse gases
- Parties' current emission of greenhouse gases
- Parties' respective capabilities
- Parties' social and economic conditions

Slide 11

Differentiation among Parties

- Annex I countries
  - (OECD + countries with economies in transition)
- Annex II countries
  - (OECD)
- Non-annex I countries
  - (developing countries)
- Least developed countries

Slide 12

Differentiated Commitments

– All Parties will prepare and submit national communications, which should contain:

- **Inventories of greenhouse gas sources and sinks**
- **Programmes containing policies & measures to mitigate and adapt to climate change**

– Annex I Parties (developed) should take the lead *by aiming* to stabilise and reduce their emissions of carbon dioxide to 1990 levels by the year 2000 *(few will do so)*.

Slide 13

Differentiated Commitments (ctd.)

– Annex II Parties (OECD) must contribute funding to the financial mechanism so developing countries can implement the Convention.

– Annex II Parties will also promote and finance the transfer of environmentally sound technologies, particularly for developing countries

Slide 14

Differentiated Commitments (ctd.)

- **Timing** of national communications
  - **Developing countries: 3 years after entry into force of the Convention or after availability of financial resources**
  - **Least developed countries: at their own discretion**
- **National communications** of developing country Parties need not be as detailed as those of Annex I.
- **Funding**
  - **Fulfilment of developing country obligations is contingent on availability of financial resources**
  - **Agreed full cost of national communications**
  - **Agreed full incremental cost of mitigation and adaptation measures**

Slide 15

Structure of the Convention

2. Institutional Framework

- Conference of the Parties
- Subsidiary Bodies
- Secretariat
- Financial Mechanism
- Ad Hoc Groups

Slide 16

Institutional Framework

- The Convention established the Conference of the Parties (COP) as the supreme body of the Convention.
- The primary task of the COP is to promote and review the implementation of the Convention and any related legal instruments (e.g., Kyoto Protocol).
- Since the Convention entered into force, March 21, 1994, the Conference of the Parties has convened 7 meetings.

Slide 17

Institutional Framework (ctd.)

- Two Subsidiary bodies have also been established to assist the Conference of the Parties (COP).
- The Subsidiary Body for Scientific and Technological Advice (SBSTA) provides the COP with information and advice on scientific and technological matters.
- The Subsidiary Body for Implementation (SBI) assist the COP in the assessment and review of the implementation of the Convention.
- A permanent secretariat of the Convention was also established at the first session of the COP. The Secretariat is located in Bonn, Germany.

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Structure of the Convention

Procedures

– Review of national communications
– Review of adequacy of commitments

Slide 19

Financial Mechanism of the Convention

- **The Global Environment Facility (GEF) provides grant and concessional funds to developing countries and those with economies in transition for projects and activities that aim to protect the global environment and achieve the Convention's objectives.**
- **The GEF supports the full costs of national communications preparation, as well as "agreed incremental costs" of mitigation and adaptation measures and projects. Technical assistance and capacity building activities are also supported by the GEF.**
- **The GEF has three Implementing Agencies:**
  - **United Nations Development Programme (UNDP);**
  - **United Nations Environment Programme (UNEP); and**
  - **The World Bank (IBRD/IFC).**

Slide 20

The Kyoto Protocol

Rationale for the Protocol

– During COP 1 in March 1995, one year after the Convention entered into force, Parties decided existing commitments under the Convention were inadequate

Negotiation of the Kyoto Protocol

– A two-year process conducted by the AGBM

– The Protocol was adopted by the Parties during COP 3 in December 1997 - *a new integral part of the Convention that has yet to enter into force*

Slide 21

Kyoto Protocol Ratification

To enter into force, the Kyoto Protocol requires ratification by no less than 55 Parties, which account for at least 55% of 1990 Annex I emissions of carbon dioxide.

Without the U.S. ratification, all major Annex I countries must ratify for Kyoto to enter into force.

Slide 22

Elements of the Kyoto Protocol

- New GHG emission reduction commitments for industrialised countries
- Cooperative Implementation Mechanisms
- New and additional financial resources to developing countries
- No new commitments for developing countries

Slide 23

Commitments of the Kyoto Protocol

- The overall emission reduction target for Annex 1 Parties as a group is at least 5 percent below 1990 levels to be achieved by the commitment period 2008 to 2012 (an average over the five years).
- The negotiated targets for individual Annex I Parties is included in Annex B of the Protocol.

Slide 24

Selected Quantified Emission Limitations

Industrialized Countries

- Australia 108
- Canada 94
- EC bubble 92
- (Germany 75)
- (Portugal 140)
- Japan 94
- Norway 101
- New Zealand 100
- [USA] [93]

As originally negotiated

Economies in Transition

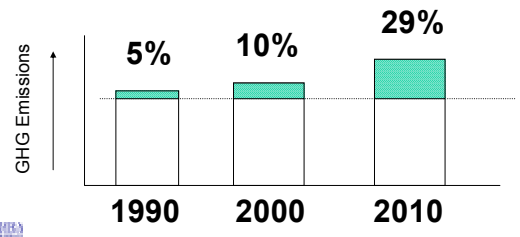
- Bulgaria 92
- Baltics 92
- Croatia 95
- Czech Republic 92
- Hungary 94
- Poland 94
- Romania 92
- Russia 100
- Ukraine 100

Slide 25

Emission Reduction Targets

Actual depth of the cut

- With increasing energy use, reduction targets for 2008-2012 based on 1990 data are greater than they appear - 5% in 1990 vs ~29% in 2010



ReductionTarget

Slide 26

Commitments of the Kyoto Protocol (ctd.)

- In meeting commitments, an Annex I Party will implement national policies and measures aimed at reducing domestic emissions during the commitment period to a level less than or equal to its 'assigned amount' (AA) under the Protocol
- Additionally, each may supplement domestic reductions with credits for reductions achieved abroad

Slide 27

Commitments of the Kyoto Protocol (ctd.)

The six GHGs controlled by the Kyoto Protocol are:

- carbon dioxide (CO_2)
- methane (CH_4)
- nitrous oxide (N_2O)
- sulphur hexafluoride (SF_6)
- perfluorocarbons (PFCs)
- hydrofluorocarbons (HFCs)

Slide 28

Flexibility Mechanisms

Between Annex I countries

- **Emissions Trading** (Article 17) **between Annex I countries to fulfill their reduction commitments. Any such trading shall be supplemental to domestic actions.**
- **Joint Implementation** (Article 6) - **fulfillment of emissions limitation and reduction commitments jointly among Annex I Parties.**
- **Emissions Bubble** (Article 4) **- fulfillment of emissions limitation and reduction commitments through sharing, between two or more Parties, of aggregated AA's.**

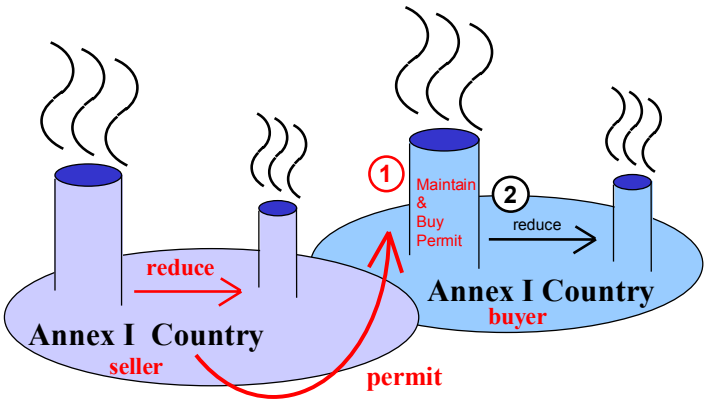
Between Annex I and non-Annex I

- **Clean Development Mechanism** (Article 12) - **to assist Parties not included in Annex I in achieving sustainable development and to assist Annex I countries in achieving compliance with their emission reduction commitments. (Not covered here.)**

Slide 29

The Emissions Trading Transaction

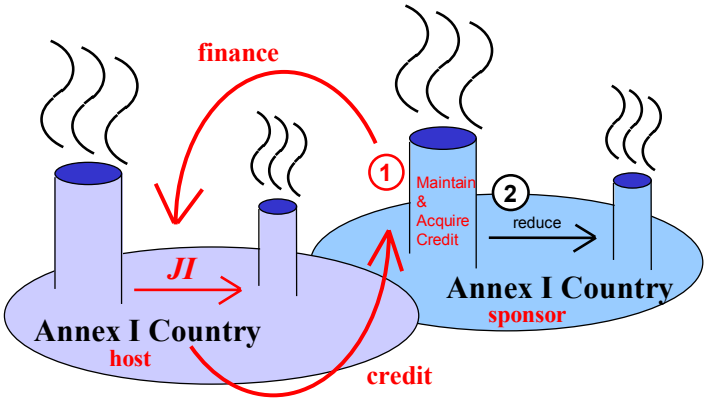
Annex I ↔ Annex I



Slide 30

The JI Transaction

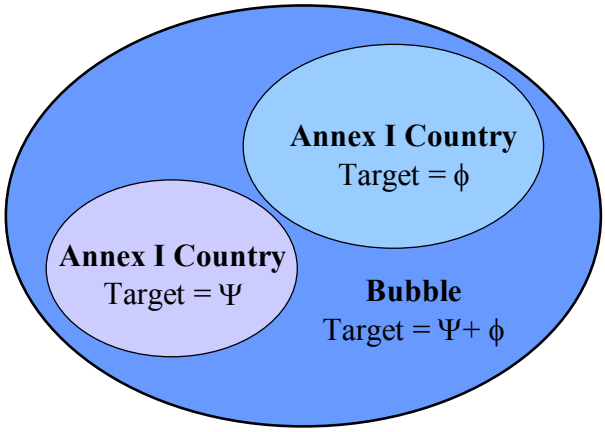
Annex I ↔ Annex I



Slide 31

Emissions Bubble

Annex I ↔ Annex I



Slide 32

Key Outcomes at COP-7

- Compliance regime sets forth consequences for failing to meet targets
- Set criteria for a Party's eligibility to participate in flexibility mechanisms and set some operating rules for JI and CDM
- Allows full fungibility of credits under all flexibility mechanisms, but limits "over-selling" of assigned amounts (AAUs)
- Allows banking of credits, but puts limits on banking of JI and CDM credits
- Requires "commitment period reserve" of 90% assigned amount of allowable reductions to protect against risk of overselling of credits

Slide 33

Key Outcomes re JI at COP-7

- Established a JI Supervisory Committee with rule-writing authority
- Established "second track" for JI for Annex I countries out of compliance or with poor monitoring/reporting. This track will have tougher guidelines similar to CDM.
- JI projects can begin generating ERU's (credits) in 2008, but a project can have started anytime after 2000
- Banking of ERU's limited to 2.5% of a Party's initial assigned amount

Slide 34

Key Outcomes re CDM at COP-7

- Established a CDM Executive Board with rule-writing authority
- CDM projects can begin generating CER's (credits) in 2000, but a project must be registered by 2005
- Allows "unilateral" CDM projects by host
- Banking of CER's limited to 2.5% of a Party's initial assigned amount

Slide 35

Key Outcomes re sinks at COP-7

- Sets rules for use of sinks and creates new "Removal Unit" (RMU) for carbon sequestered through land use/forestry in Annex I countries
- RMUs cannot be banked
- CDM sink projects limited to afforestation and reforestation up to a ceiling of 1% of base year emissions (times 5 years)
- Russia allowed much more credit for forest management activities

Slide 36

Issues for future COP's

- Will the consequences called for in the compliance regime be legally binding?
- Will developing countries undertake voluntary emissions limitation commitments?
- Will financial assistance and technology transfer to developing countries be enhanced?
- Discussion on reduction targets and commitments for the post-2012 period will begin by 2005.

Slide 37

GHG Market Is Emerging

- Despite uncertainties, an "unofficial" GHG market is emerging in anticipation of Kyoto or something like Kyoto being ratified in the future
- Market has companies participating from many countries, e.g., U.S., Canada, Europe, Japan, Australia
- Market has sophistication of trades, forward contracts, futures contracts
- Worldwide players involved, e.g., Price Waterhouse Coopers, Deloitte Touche, NatSource
- Allows early engagement and learning

Slide 38

MODULE I: BASICS OF CLIMATE CHANGE

Session 4: Methods of Climate Change Assessment

Overview

- **General Objectives:** Session 4 introduces the participants to the various methodologies used in climate change analysis, providing a thorough overview of each.

  By the end of the session, participants should have a basic understanding of the following:

  a) The vocabulary used in each of the methodologies
  b) The purpose of using each of the methodologies
  c) The primary steps involved in using each of the methodologies
  d) A sense of how the tools can be used in the development of a climate change response

  The module will *not* equip participants to undertake any of the methodologies. It simply provides a basic understanding of what is entailed in undertaking them, and how they can be designed to maximize national benefits, e.g., how they can be used to promote environmental and natural resource management.

- **Activities:** Presentation, followed by period of question and answer

- **Total Time:** 45 minutes

- **Materials:** Set of 19 OHTs; 1 handout

Methods of Climate Change Assessment

Session 4

CCI - Ukraine Workshop Package

Slide 1

Principal Topics

- National Inventories of Greenhouse Gases
- Vulnerability Assessments
- Adaptation Analysis
- Mitigation Analysis
- Capacity-Building Needs Analysis

Slide 2

Overview

- Methodological tools are used in the development of **national implementation strategies**
- Applying these tools provides basic information needed to formulate **national communications** under the UNFCCC
- The result can also help national governments **formulate projects and programmes** that can be funded under the financial mechanism of the Convention

Slide 3

Key Principles

- Studies should be adapted to fit national circumstances
- Studies should be structures so as to provide feedback and input to national development plans
- Studies should take account of all greenhouse gases, but will typically emphasise carbon dioxide
- Results of the inventory and vulnerability assessments should be used to structure the adaptation and mitigation analyses

Slide 4

Inventories of Greenhouse Gases (GHG)

- Basic methodology developed by IPCC jointly with OECD (IPCC Standards1995)
- Emphasis on GHG emissions from commercial energy sector
- Modified to address emissions from livestock and land-use change
- Most important changes in sinks are due to expansion or contraction of forest area; and,
- Conversion of natural ecosystems or unmanaged lands to agriculture

Slide 5

The National Inventory:

An Assessment of Sources and Sinks of GHGs

- The Convention requires all Parties to report estimates of emissions by sources and uptake by sinks and reservoirs
- This balance sheet provides an estimate of a national contribution to global climate change
- Emissions = Emissions Factor x Activity Data

Slide 6

Three Principal Components of an Emissions Inventory

– Emissions from **fossil fuel use** or non-sustainable use of biomass

– Emissions from **livestock and agriculture**

– Emissions from **land-use change**

Slide 7

Process of uptake by Sinks are not yet well understood

– Uptake by sinks occurs principally in soils and green plants

– Carbon dioxide is taken up by green plants, especially trees

– If the amount of biomass planted is equal to the amount that is burned, then there is no net uptake or release of carbon *(i.e., sustainable use of biomass)*

– If more biomass is harvested than is planted, then carbon is released into the atmosphere *(i.e., unsustainable use of biomass)*

Slide 8

A Vulnerability Assessment

- Pinpoint the risk of rapid climate change for national economies and natural ecosystems
- Identify the economic sectors and geographic regions most at risk
- Identify the components of natural ecosystems that may be negatively affected by rapid climate change

Slide 9

Vulnerability Assessment (ctd.)

- Requires review or evaluation of the effects of climate change, both positive and negative, on populations, economic sectors and ecosystems
- Can be qualitative as well as quantitative in nature
- Is usually based on local experience with past weather events (e.g., severe rain storms, droughts, hot spells, cold snaps, floods, and wind storms) that resemble climate change

Slide 10

Tools for Forecasting Impacts

- **Climate Models** simulate future atmospheric conditions and estimate principal climate variables including temperature, rainfall, runoff, and soil moisture.
- **Impact Models** incorporate climate scenarios to estimate impacts of changes on different sectors (e.g., health, water, agriculture).
- **Analogy**: Based on historical experience that may be local or international, this method incorporates considerations of institutional responses as well as physical events. It can also identify opportunities for long-term economic development and resource management so that adaptation strategies can be developed

Slide 11

Adaptation Analysis

"An Adaptation Analysis highlights the key opportunities, projects, programmes or measures available **to reduce the impacts of those climate changes which cannot be avoided."**

- Asks the question: "what can we do to reduce the economic, physical, and biological damages due to future climate changes ?"
- Includes technological, institutional, behavioural and policy responses

Slide 12

Adaptation Analysis (ctd.)

- **May be based on assessments of institutional reform and other behavioural responses to climate change**
- **Can include both new management techniques, specific educational strategies, and shifts in development plan in light of the risk of rapid climate change**
- **Can include economic modelling of proposed policies or introduction of new technologies**
- **Can include physical and engineering analysis of protective measures**
- **Can include assessments training and communication strategies to increase public awareness**

Slide 13

Mitigation Analysis

"A Mitigation Analysis identifies the opportunities to **reduce emissions** of greenhouse gases or reduce the risk of rapid climate changes."

- **Asks the question: "what can we do locally and nationally to reduce the risk of rapid climate changes ?"**
- **Assesses measures to reduce emissions and enhance local sinks for greenhouse gases**
- **Evaluates the economic impact of national measures and, in particular, their effects on national development plans**

Slide 14

Mitigation Analysis (ctd.)

- Should look comprehensively at GHG emissions
- Traditionally focused on energy sector measures to:
  - **increase efficiency of energy use**
  - **switch to less carbon-intensive fuels**
  - **alter composition of industrial activity**
- Should also assess opportunities in:
  - **Agriculture**
  - **Forestry**
  - **Industry**
  - **Residential**
  - **Transport sectors**

Slide 15

EIT Countries

- May not reduce their emissions in absolute terms in the near-term
- May reduce the rate of growth in their emissions
- May choose to reduce current and future emissions through Joint Implementation projects with other Annex I countries
- May increase sink capacities by improving management practices in the forestry and agricultural sectors
- May face increased costs (incremental costs) of development resulting from their response to climate change. Such costs may be financed by the Financial Mechanism of the Convention (GEF)

Slide 16

Increasing Capacity:

Building on Existing Strengths

- Parties to the Convention must carefully evaluate their need to build-up existing human and institutional strengths in order to achieve objectives of the Convention
- Institutional reform may be needed to promote the introduction of new technologies
- Education, communication, and training are essential to effective responses

Slide 17

MODULE I: BASICS OF CLIMATE CHANGE

Session 5: Financing and Flexibility Mechanisms

Overview

- **General Objectives:** By the end of the session, participants should have a basic understanding of:
  e) The types of international financing mechanisms that are available to support activities that have global environmental climate change benefits
  f) The reasons why financial mechanisms are needed
  g) The nature of how project-level transactions are made under the flexibility mechanisms
- **Activities:** Presentation, followed by period of question and answer
- **Total Time:** 45 minutes
- **Materials:** Set of 23 OHTs

Financing and Flexibility Mechanisms

Session 5
CCI - Ukraine Workshop Package

Session Overview

- The objective of the session is to provide a survey of selected international financing mechanisms that are available to support activities that have global environmental climate change benefits.

Selected Financial Mechanisms

- **Global Environment Facility (GEF)**
- **Multilateral Agencies and Development Banks**
- **Bilateral Agencies**
- **Selected Large Private Sector Companies**
- **Flexibility Mechanisms (JI, emissions trading, bubbling)**

Climate Change Project Funding

Funding has been provided for through the Convention and the Kyoto Protocol. Reasons for this include:

- Climate Change is a common concern of humankind
- Developed countries are responsible for the largest share of historical and current global emissions of greenhouse gases
- EIT countries have less capacity than Annex I (developed) countries to implement the Convention
- Developed countries have agreed to provide funding for activities undertaken by developing countries to implement the Convention and its Protocol

Slide 3

Participating in the Kyoto Protocol

(Although the U.S. government has withdrawn its support, it has indicated that it has no objection to other countries ratifying and participating in the Protocol)

The Protocol provides a range of mechanisms

- Domestic policies and measures
- Flexibility mechanisms (Articles 4, 6, 12, 17)
  - Bubbling
  - Emissions Trading (ET)
  - Joint Implementation (JI)
  - Clean Development Mechanism (CDM)

Slide 4

Mechanisms for Implementation:

Domestic policies and measures

- In accordance with national circumstances
  - enhance energy efficiency
  - protect and enhance sinks
  - promote sustainable forms of agriculture
  - research and promote renewable energy
  - eliminate inappropriate fiscal measures
  - encourage reform in transport & energy sectors

Slide 5

Possible Barriers to Mitigation Options:

the need for financial mechanisms

- High initial investment cost
- Insufficient capability in identifying and assessing non-conventional projects
- Perceived alternative technology risk
- Higher transaction costs
- Price distortions
- Regulatory barriers and biases
- Lack of information

Slide 6

Global Environment Facility

- **The Global Environment Facility (GEF) provides grant and concessional funds to developing countries and those with economies in transition for activities that aim to protect the global environment and achieve the Convention's objectives.**
- **GEF supports the full costs of national communications preparation, as well as "agreed incremental costs" of mitigation and adaptation measures and projects. Technical assistance and capacity building activities are also supported by the GEF.**
- **Projects supported by the GEF must be country driven and based on national development priorities. GEF maintains full disclosure of non-confidential information.**
- **GEF advocates consultation and participation of stakeholders.**

Slide 7

GEF Operations

- GEF has three Implementing Agencies:
  - United Nations Development Programme (UNDP);
  - United Nations Environment Programme (UNEP); and
  - The World Bank (IBRD/IFC).
- The GEF Operational Program contains four focal areas:
  - Biological Diversity; **Climate Change**; International Waters; and Ozone Depletion.
- The Climate Change Focal Area includes:
  - Three operational programs
  - Enabling Activities
  - Short-Term Response Measures

Slide 8

Steps in GEF Project Development

- Scope-out impeded win-win activities that have global environmental benefits
- Identify specific barriers that are currently impeding the option
- Perform incremental cost analysis for implementation of the option
- Propose GEF intervention
- Demonstrate sustainability

Slide 9

Mechanisms for Implementation: Flexibility Mechanisms

- Why so much interest in these mechanisms?
  - Address emission reduction cost concerns
  - Provide for flexibility in achieving targets
  - Provide opportunities for access to the best current and future energy efficient technologies
  - Provide opportunities for more energy efficient markets
  - Involve non-state entity participation

Slide 10

Mechanisms for Implementation

Joint Implementation (JI)

- Project-based mechanism whereby a developed country can receive credits (ERU's) when helping to finance projects in another developed country or EIT country (art. 6)
- Conditions are same as emissions trading though Protocol explicitly permits non-state entity participation
- Activities Implemented Jointly (AIJ) provided a pilot phase for such projects

Slide 11

Mechanisms for Implementation

Activities Implemented Jointly (AIJ)

AIJ under the Pilot Phase

- AIJ pilot phase was established at the first meeting of the COP in Berlin in 1995. (Decision 5/CP.1)
- Emission reductions realized during the pilot phase can not be used to meet reduction commitments under the Protocol.
- The primary purpose of the pilot phase is for all Parties to "learn by doing" and thus gain experience with AIJ.
- As of early 1999, approximately 123 AIJ projects are under implementation or being planned (JIQ, 1999) of which 40 are in Non-Annex I countries.
- At the COP 5, Parties may request a comprehensive review of the AIJ under the pilot phase.

Slide 12

U.S. Initiative on Joint Implementation

- USIJI pilot program was launched in 1993 as part of the US Climate Change Action Plan.

Rational for Joint Implementation

- Transfer of technologies via partnerships
- Efficient reduction of global GHG emissions
- Contribute to sustainable development
- Increase private sector investment in developing countries
- Expand new markets for innovative "green" technologies
- Enhance local environmental and human health benefits

Slide 13

U.S. Initiative on Joint Implementation

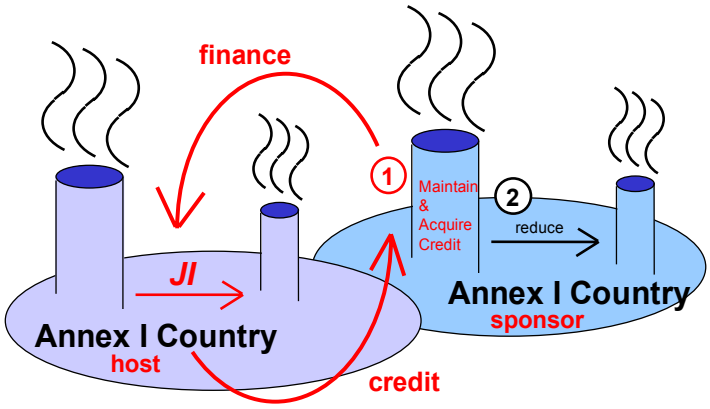
Selected USIJI Accepted Projects

- Poland - Coal Bed Methane Recovery (Aquatech Services, Inc. of Fair Oaks, CA)
- Philippines - Energy Efficient Street Lighting (International Institute for Energy Conservation)
- Czech Republic - Fuel Switching and Cogeneration (US electric utilities and Center for Clean Air Policy)
- Honduras - Bio-Gen Biomass Power Generation Project

Slide 14

The JI Transaction

Annex I ↔ Annex I



Slide 15

Mechanisms for Implementation

Joint Implementation (JI) ctd.

- Ideal JI project
  - Domestic regulation in investor country A leads corporation X to invest in technology-transfer project which reduces emissions in host country B
  - Corporation X saves $, Country B receives investment and technology, resulted in decreased emissions - a “win-win” scenario
- Possible only if
  - marginal cost to reduce x unit of GHG in investor Country A is significantly higher than in host Country B
  - mechanisms in Country B are in place to measure, monitor and certify GHG reductions resulting from investment by corporation X in Country A
  - mechanisms, methodologies and institutions are in place to oversee projects and credits

Slide 16

Mechanisms for Implementation

Joint Implementation (JI) ctd.

- Outstanding issues (building confidence)
  - allowable emissions must be allocated amongst participants
  - requires definition of appropriate "part" of country's emission reduction commitment
  - relies on outstanding issues related to certification, verification and compliance

Slide 17

Mechanisms for Implementation

Emissions Trading and "Bubbles"

"The Parties included in Annex B may participate in emissions trading for the purposes of fulfilling their commitments…" [Kyoto Protocol, Art.17]

> **Emissions trading:** Parties may purchase and sell emissions allowances, to help them meet their targets.

"Any Parties included in Annex 1 that have reached an agreement to fulfil their commitments under Article 3 jointly, shall be deemed to have met those commitments provided that their combined emissions do not exceed their assigned amounts…" [Kyoto Protocol, Art.4]

> **Bubbles**: Parties may group together to jointly satisfy their targets, (e.g. EU)

Slide 18

Mechanisms for Implementation

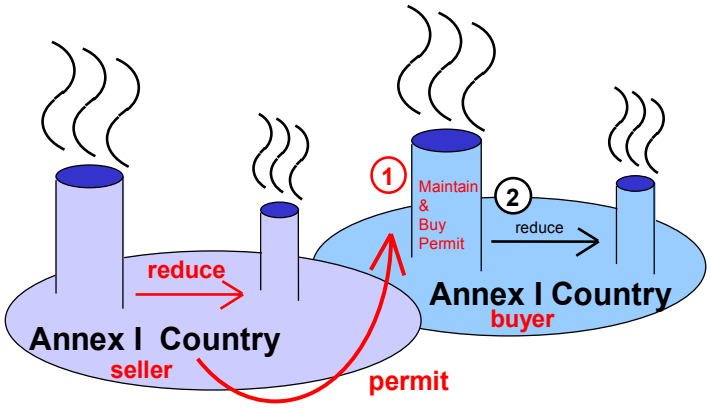
Emissions Trading

- The traded quantity is a part of the assigned amount of the selling Party: measured in tons CO_2-equivalent
- All six gases treated interchangeably. Allowances valid for: CO_2, CH_4, N_2O, HFCs, PFCs, SF_6
- Trades might be negotiated even before first budget periods.
- Trades might involve national governments and any other government-endorsed legal entity (for example, if national trading system is in place).

Slide 19

The Emissions Trading Transaction

Annex I ↔ Annex I



Slide 20

Mechanisms for Implementation

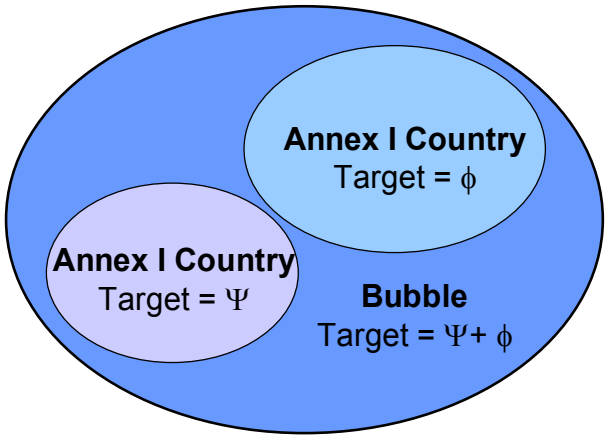
Joint targets or 'Bubbling'

- Agreement between specified group of countries to meet targets jointly as aggregate
- The EU will pursue this approach

Slide 21

Emissions Bubble

Annex I ↔ Annex I



Slide 22

Mechanisms for Implementation

Summary

Characteristics	Joint Targets (Bubbling)	Emissions Trading (ET)	Joint Implemntation (JI)	Clean Developmnt Mechanism (CDM)
Provision in Protocol	Article 4	Article 17	Article 6	Article 12
Investors (Transferees)	Annex I	Annex I	Annex I	Annex I
Hosts (Transferors)	Annex I	Annex I	Annex I	Non-Annex I
Nature of Mechanism	Inventory-based	Inventory-based	Project-based	Project-based
Compliance Conditionality	Notification to Secretariat	Verification rules pending	Yes, Articles 5, 7, 8	Pending (?)

Slide 23

MODULE I: BASICS OF CLIMATE CHANGE

Session 6: Climate Change Action Plans

Overview

General Objectives: By the end of the session, participants should have a basic understanding of the purpose, process and special considerations of preparing National or Local Climate Change Action Plans (CCAP)

- Basic components of Climate Change Action Plans
- Rationale for developing a CCAPs
- General steps involved in preparing a CCAPs
- Background data and analyses needed for a CCAPs
- Special considerations for CCAPs implementation
- Examples of experience of EIT countries

Activities: An overhead slide presentation, followed by period of questions and answers

Total Time: 30 minutes

Materials: Set of 23 OHTs

Reading and Resources

Where to Find More Information:

- US Country Studies Program (1996) *Steps in Preparing Climate Change Action Plans: A Handbook*
- Ukraine's *National Action Plan on Climate Change* http://www.gcrio.org/CSP/ukraine_rpts.html
- Ukraine's *First National Communication on Climate Change* (1998)
- US Country Studies Program (1997) *National Climate Change Action Plans: Interim Report for Developing and Transition Countries*
- US Country Studies Program (1995) *Interim Report on Climate Change Country Studies*

National Climate Change
Action Plans

Session 6

CCI - Ukraine Workshop Package

Slide 1

Overview of the Session

- Framework for National Climate Change Action Plans
  - Basic Components of the national climate change action plan
  - Rationale for developing a NCCAP
  - Intro to Ukraine's NCCAP
  - Lessons from past experience
- 10 General steps for preparing a NCCAP
  - Sample experiences of countries with Economies in Transition (EIT)
  - Background data and analyses needed for a NCCAP
  - Special considerations for NCCAP implementation

Slide 2

Basic Components of a NCCAP

- Goals and objectives of the plan
- Mitigation and adaptation strategies/action plans and integrated national action plans
- Economic, environmental, social, and GHG implications of the mitigation and adaptation action plans
- Implementation plan for the policies and measures of the action plans

Slide 3

Rationale for Developing a NCCAP

- Raise awareness of and action on climate change issues
- Presents an opportunity to identify appropriate responses
- Bring together a wide range of stakeholders
- Assists in meeting UNFCCC requirements (e.g., National Communications)
- Identifies measures which may facilitate international cooperation and assistance (including JI activities)
- Identifies mitigation and adaptation measures that may result in substantial savings for implementing country

Slide 4

Ukraine's NCCAP

- First NCCAP report (1998) produced with the US Country Studies Program's Support for National Action Plans (SNAP)
- Agencies involved in NCCAP preparation/coordination:
  - Ministry for Environmental Protection and Nuclear Safety
  - State Committee of Ukraine for Energy Conservation
  - State Committee for Forestry
  - Agency for Rational Energy Use and Ecology
- NCCAP focuses on:
  - Evaluation and development of energy saving measures
  - Measures to reduce GHGs in forestry
  - Development of legislative and regulatory infrastructure

Slide 5

Lessons from Past NCCAP Efforts

- Planning should emphasize integration
- Diverse government agencies should be involved
- Stakeholder involvement is critical
- The process should maintain focus on clear objectives
- Planning should have a practical orientation that emphasizes implementation
- Plans should be changed according to changing circumstances
- Plans should be domestically controlled, not donor-driven
- High policymaker and stakeholder awareness may be required for process to gain momentum

Slide 6

10 Steps in Developing a NCCAP

1. **Design planning process**
2. **Determine objectives and sectors of interest**
3. **Prepare a comprehensive workplan**
4. **Evaluate and develop measures**
5. **Analyze and recommend measures**
6. **Prepare implementation strategies for measures**
7. **Prepare and adopt climate change plan**
8. **Prepare/update National Communication**
9. **Integrate plan with others**
10. **Implement the plan**

Slide 7

1) Design an Effective Planning Process

- Conduct initial scoping activities
- Convene an initial scoping meeting
- Develop a climate change planning steering committee
- Work with steering committee and core group of analysts on general parameters of plan
- Create sector-specific teams and multisectoral teams to evaluate and develop respective measures.

Slide 8

2) Determine Overall Plan Objectives and Sectors of Interest

Basic objectives of NCCAP:

- Integrating climate change concerns into other planning processes
- Reaching consensus in favor of mitigation and adaptation measures

Once objectives are clarified, a country can determine:

- which sectors are most critical to address, and thus,
- which agencies and organizations will need to play key roles

Slide 9

EIT Stated Objectives of NCCAP

Objectives	Bulgaria	Czech Rep.	Hungary	Russian Fed.
Fulfill UNFCCC commitments	X	X	X	X
Ensure integration with other development priorities	X		X	
Raise public awareness of climate change issues	X	X		
Create broader support among decision makers	X	X		X
Increase domestic technological capabilities				X

Source: USCSP (1997)

Slide 10

3) Prepare a Comprehensive Workplan

Workplans are intended to:

- Identify priority areas to be addressed
- Identify methods to be used to screen and evaluate mitigation and adaptation options
- Identify products, milestones and work schedules
- Describe how the results of analyses (sectoral and multisectoral) will be used to prepare the national plan and how it will be integrated into development plans
- Identify roles of government agencies, NGOs and others
- Involve coordination with interagency team and review by key stakeholders

Slide 11

4) Evaluate and Develop Measures

Sectoral and multisectoral teams will:

- Set priorities
- Select and develop measures for evaluation
- Perform technology assessment
- Evaluate measures at a sectoral level
- Perform cross-sectoral comparison and evaluation of measures
- Select measures to recommend and present results to key officials and interagency team

Slide 12

EIT Proposed Mitigation Measures: Energy

Proposed Measure	Bulgaria	Czech Rep.	Hungary	Russian Fed.
Energy Supply:				
Increased use of renewable resources	X	X	X	
Upgrade/replace existing plants	X		X	
Increase use of natural gas	X	X		
Increase use of nuclear power		X		
Proposed Measure ***Energy Demand (General):***				
Alter pricing structure to smooth/reduce demand	X	X		X

Source: USCSP (1997)

Slide 13

Ukraine NCCAP Mitigation Measures

Types of Measures for Energy Savings:

- Regulatory-legal measures (draft laws, standards, resolutions)
- Organizational measures
- Financial-economic measures
- Informative-educational measures
- Technical/technological cross-sectoral measures

Specific of Measures in Forestry Sector:

- Increase forest cover and productivity to an optimum level
- Enhance forest plantation resilience
- Develop protective plantations, 'shelterbelts' and agroforestry
- Increase productivity and ecological stability of agricultural lands
- Provide efficient protection against fires, pests and blights
- Preserve/restore biodiversity and forest self-regulation

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5) Perform Comparative Analysis of Measures

Interagency teams *may* wish to conduct a comparative analysis of the sectoral and multisectoral measures.

This can assist with:

- Examining relative merits, costs, barriers to implementation
- Determining investment priorities across sectors
- Identifying refinements in measures that may increase the effective use of resources across sectors

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Data and Analyses Used in NCCAPs

- Current profile data
- Detailed projection of these data to a target year
- National economic and social development plans
- Inventory of GHG sources and sinks by sector
- Climate change vulnerability assessment
- Feasible GHG mitigation and adaptation options
- Trends in international resource prices, technology development, and technology market penetration rates
- GHG sources and sinks scenarios

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6) Prepare Implementation Strategies for Selected Measures

Following the selection of measures, strategies should be prepared for each measure, and for the plan as a whole.

These should address:

- Identification of lead agency and roles of other relevant groups
- Identification and description of key steps
- Identification of necessary human and financial resources, and the sources for these (e.g., Joint Implementation proposals)
- Scheduling of steps and activities
- Outreach activities to ensure successful implementation
- Monitoring and evaluation procedures
- Measures which have the potential to be Implemented Jointly

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Joint Implementation in NCCAP

Experience of The Russian Federation:

- As of 1997, Russia had three JI projects in implementation
  - reforestation project
  - energy efficiency in horticulture
  - landfill methane extraction, burning and electricity production
- Also in 1997, Russia had three JI projects approved, and awaiting financing
  - reduction of methane leakage from pipeline pumps
  - energy efficiency in centralized heating systems
  - afforestation and reforestation project

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7) Prepare and Adopt Climate Change Plan

Action plan is formulated, circulated for review and submitted for adoption. This process generally includes:

- Preparation of sectoral and multisectoral components
- Integration and revision of sectoral and multisectoral components
- Preparation of integrated draft plan
- Circulation of draft for review by key groups
- Solicitation of public and private sector input
- Preparation of final plan
- Country-specific adoption procedure

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8) Prepare/Update National Communications

The NCCAP is intended to be used in part or in full in the National Communications.

The assessments of measures is directly applicable to the National Mitigation Assessment and the Adaptation Assessment.

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9) Integrate the NCCAP with Other Plans

Success of NCCAP implementation will depend in part on how well the plan is integrated with other plans and programs (national, sectoral, regional and local).

Examples of the types of plans to consider include:

- long-term development plans
- national environmental action plans
- national energy plans
- financial incentive programs
- adjunct plans and programs

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10) Implement the NCCAP

First steps in the implementation process include:

- Securing the necessary resources (human and financial)
- Launching outreach activities
- Monitoring and evaluating implementation process
- Updating the plan

Countries may implement certain high priority measures before the plan is completed to test approaches, take advantage of windows of opportunity, and build support.

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For more information:

- US Country Studies Program (1996) *Steps in Preparing Climate Change Action Plans: A Handbook*
- Ukraine's *National Action Plan on Climate Change* http://www.gcrio.org/CSP/ukraine_rpts.html
- Ukraine's *First National Communication on Climate Change* (1998)
- US Country Studies Program (1997) *National Climate Change Action Plans: Interim Report for Developing and Transition Countries*
- US Country Studies Program (1995) *Interim Report on Climate Change Country Studies*

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Training Module Evaluation Form

Title of Module: Basics of Global Climate Change Module # 1
Date:

For each statement below, mark the circle on the scale that corresponds to your opinion.

		Evaluation score					
		1	**2**	**3**	**4**	**5**	
1. The presentation of this module was	Unclear	O	O	O	O	O	Clear
2. The objectives of this module were	Not important	O	O	O	O	O	Important
3. The information presented in this module was	Not sufficient	O	O	O	O	O	Sufficient
4. The information presented in this module was	Not useful	O	O	O	O	O	Useful
5. The exercises in this module were	Not interesting	O	O	O	O	O	Interesting
6. The knowledge acquired through this module was	Insignificant	O	O	O	O	O	Important
7. Participating in this module enable you to learn	Nothing new	O	O	O	O	O	Many new things

What did you like most about this module? _____
_____

What did you like least about this module? _____
_____

What is your opinion on presenters? _____
_____

What is your opinion on organization of this module? _____
_____

On what themes presented in the module would you like to get more information? _____

What module themes would be interesting for you in the future? _____

Comments: _____